



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/782,397 | 02/18/2004 | Claude R. Mallet | 60505CIP2(49991) | 4351 |
| 21874 | 7590 | 06/03/2008 | EXAMINER | |
| EDWARDS ANGELL PALMER & DODGE LLP | | | THERKORN, ERNEST G | |
| P.O. BOX 55874 | | | ART UNIT | PAPER NUMBER |
| BOSTON, MA 02205 | | | 1797 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 06/03/2008 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/782,397 | MALLET ET AL. | |
| | Examiner | Art Unit | |
| | Ernest G. Therkorn | 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 May 2008.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-10,28-30,50,55-58,60,62,64-67 and 69 is/are pending in the application.

4a) Of the above claim(s) 28-30,50,55-57,62,64 and 65 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-10,58,60,66,67 and 69 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/19/08.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) Notice of Informal Patent Application

6) Other: _____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10, 58, 60, 66, 67, and 69 are rejected under 35 U.S.C. 102(B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takahashi (E.P. 1,159,995). The claims are considered to read on Takahashi (E.P. 1,159,995). However, if a difference exists between the claims and Takahashi (E.P. 1,159,995), it would reside in optimizing the elements of Takahashi (E.P. 1,159,995). It would have been obvious to optimize the elements of Takahashi (E.P. 1,159,995) to enhance separation.

Claims 1-10, 58, 60, 66, 67, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (E.P. 1,159,995) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844). At best, the claims differ from Takahashi (E.P. 1,159,995) in reciting use of cyclic tertiary amines or substituted cyclic amines. Takahashi (E.P. 1,159,995) (paragraph 33) calls for primary, secondary,

tertiary, and quaternary amines as an anion exchange group. Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions. Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups. Greer (U.S. Patent No. 2,801,224) (column 4, line 72) discloses claim 10's piperazine and morpholine. Gilwood (U.S. Patent No. 2,824,844) (column 5, lines 33-35) discloses claim 10's piperazine and morpholine. It would have been obvious to use cyclic tertiary amines or substituted cyclic amines in Takahashi (E.P. 1,159,995) either because Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions or because Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Takahashi (E.P. 1,159,995) alone or Takahashi (E.P. 1,159,995) in view of either Greer

(U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) as applied to claims 1-10, 58, 60, 66, 67, and 69 above, and further in view of Hofstee (U.S. Patent No. 4,000,098) and Unger, Chromatographic Science Series, 47:585-720 (1990). At best, the claim differs from Takahashi (E.P. 1,159,995) alone or Takahashi (E.P. 1,159,995) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) in reciting an electron withdrawing group such as benzylamine. Hofstee (U.S. Patent No. 4,000,098) (column 3, lines 38-64) discloses that benzylamine is interchangeable with secondary amines. Unger, Chromatographic Science Series, 47:585-720 (1990) discloses that aromatic amines are anion exchangers. It would have been obvious to use benzylamine in Takahashi (E.P. 1,159,995) alone or Takahashi (E.P. 1,159,995) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) because Hofstee (U.S. Patent No. 4,000,098) (column 3, lines 38-64) discloses that benzylamine is interchangeable with secondary amines and because Unger, Chromatographic Science Series, 47:585-720 (1990) discloses that aromatic amines are anion exchangers.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (E.P. 1,159,995) alone or Takahashi (E.P. 1,159,995) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) as applied to claims 1-10, 58, 60, 66, 67, and 69 above, and further in view of Unger, Chromatographic Science Series, 47:585-720 (1990). At best, the claims differ from Takahashi (E.P. 1,159,995) alone or Takahashi (E.P. 1,159,995) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) in reciting reaction

with a haloalkyl. Unger, Chromatographic Science Series, 47:585-720 (1990) (pages 602-603) discloses chloromethylating a polymer and reaction with ammonia, a primary amine, or a secondary amine is one way of forming an anion exchanger. It would have been obvious to react with a haloalkyl in Takahashi (E.P. 1,159,995) alone or Takahashi (E.P. 1,159,995) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) because Unger, Chromatographic Science Series, 47:585-720 (1990) (pages 602-603) discloses chloromethylating a polymer and reaction with ammonia, a primary amine, or a secondary amine is one way of forming an anion exchanger.

Claims 1-10, 58, 60, 66, 67, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844). At best, the claims differ from each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in reciting use of cyclic tertiary amines or substituted cyclic amines. Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions. Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups. Greer (U.S. Patent No. 2,801,224) (column 4, line 72)

discloses claim 10's piperazine and morpholine. Gilwood (U.S. Patent No. 2,824,844) (column 5, lines 33-35) discloses claim 10's piperazine and morpholine. It would have been obvious to use cyclic tertiary amines or substituted cyclic amines in each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) either because Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions or because Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) as applied to claims 1-10, 58, 60, 66, 67, and 69 above, and further in view of Hofstee (U.S. Patent No. 4,000,098) and Unger, Chromatographic Science Series, 47:585-720 (1990). At best, the claim differs from each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) in reciting an electron withdrawing group such as benzylamine. Hofstee (U.S. Patent No. 4,000,098) (column 3, lines 38-64) discloses that benzylamine is interchangeable with secondary amines. Unger, Chromatographic Science Series,

47:585-720 (1990) discloses that aromatic amines are anion exchangers. It would have been obvious to use benzylamine in each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) because Hofstee (U.S. Patent No. 4,000,098) (column 3, lines 38-64) discloses that benzylamine is interchangeable with secondary amines and Unger, Chromatographic Science Series, 47:585-720 (1990) discloses that aromatic amines are anion exchangers.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) as applied to claims 1-10, 58, 60, 66, 67, and 69 above, and further in view of Unger, Chromatographic Science Series, 47:585-720 (1990). At best, the claims differ from each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) in reciting reaction with a haloalkyl. Unger, Chromatographic Science Series, 47:585-720 (1990) (pages 602-603) discloses chloromethylating a polymer and reaction with ammonia, a primary amine, or a secondary amine is one way of forming an anion exchanger. It would have been obvious to react with a haloalkyl in each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) in view of either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844) because Unger, Chromatographic Science Series, 47:585-720 (1990) (pages 602-603) discloses chloromethylating a polymer and reaction with

ammonia, a primary amine, or a secondary amine is one way of forming an anion exchanger.

The remarks urge that Takahashi (E.P. 1,159,995) does not have the recited amine. However, Takahashi (E.P. 1,159,995) page 3, line 31's N-vinyl-2-pyrrolidone is considered to be a recited amine.

The remarks urge that N-vinyl-2-pyrrolidone is an amide and not an amine. However, amides are amines. N-vinyl-2-pyrrolidone is a tertiary amine because three of the hydrogen atoms from ammonia have been substituted. As such, the claims read on Takahashi (E.P. 1,159,995).

The remarks urge that Greer (U.S. Patent No. 2,801,224) and Gilwood (U.S. Patent No. 2,824,844) teach away from use of tertiary amines in Takahashi (E.P. 1,159,995). However, Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions. Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups. Greer (U.S. Patent No. 2,801,224) (column 4, line 72) discloses claim 10's piperazine and morpholine. Gilwood (U.S. Patent No. 2,824,844) (column 5, lines 33-35) discloses claim 10's piperazine and morpholine. Motivation exists to use cyclic tertiary amines or substituted

cyclic amines in Takahashi (E.P. 1,159,995) either because Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions or because Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups.

The remarks urge patentability based upon Hofstee (U.S. Patent No. 4,000,098)'s disclosure of benzylamine. However, page 15, lines 3 and 4 of the specification discloses benzylamine as applicants' specific electron withdrawing group.

The remarks urge that there is no motivation to combine each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) with either Greer (U.S. Patent No. 2,801,224) or Gilwood (U.S. Patent No. 2,824,844). However, Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions. Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent

anion exchanging groups. Greer (U.S. Patent No. 2,801,224) (column 4, line 72) discloses claim 10's piperazine and morpholine. Gilwood (U.S. Patent No. 2,824,844) (column 5, lines 33-35) discloses claim 10's piperazine and morpholine. Motivation exists to use cyclic tertiary amines or substituted cyclic amines in each of Lee (U.S. Patent No. 6,322,695) and Lee (WO 99/64480) either because Greer (U.S. Patent No. 2,801,224) (column 1, lines 38-43, column 1, line 66-column 2, line 18, and column 3, lines 2-12) discloses that his cyclic tertiary amine, which is also a substituted cyclic amine, has all the essential properties of a successful anion exchange resin, an unusually high operating capacity, and a high capacity for the removal of weaker anions or because Gilwood (U.S. Patent No. 2,824,844) (column 2, lines 70-column 3, line 1, column 3, lines 36-54, and column 6, lines 5-13) discloses that his tertiary amine and also his cyclic amine substituted with an electron withdrawing chlorine provide excellent anion exchanging groups.

The remarks urge patentability based upon commercial success. However, they would appear to be no evidence of record of commercial success.

Lee (U.S. Patent No. 7,232,520) has been considered from a double patenting perspective. However, restriction requirements in both the instant case and Lee (U.S. Patent No. 7,232,520) maintain that compound claims and porous material claims are patentably distinct. As such, a double patenting rejection would be inappropriate.

Lee (U.S. Patent Publication No. 2007/0205156)'s application number 11/799,376 has been considered from a double patenting perspective. However, the restriction requirement in S.N. 11/799,376 maintains that porous material and cartridge

claims are patentably distinct. As such, a double patenting rejection would be inappropriate.

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to E. Therkorn at telephone number (571) 272-1149. The official fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Application/Control Number:
10/782,397
Art Unit: 1797

Page 12

Status information for unpublished applications is available through Private PAIR only.
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ernest G. Therkorn/
Ernest G. Therkorn
Primary Examiner
Art Unit 1797

EGT
June 2, 2008